

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
RIPARIAN HERBACEOUS COVER

(Ac.)

CODE 390

DEFINITION

Grasses, sedges, rushes, ferns, legumes, and forbs tolerant of intermittent flooding or saturated soils, established or managed as the dominant vegetation in the transitional zone between upland and aquatic habitats.

PURPOSE

This practice may be applied as part of a conservation management system to accomplish one or more of the following purposes:

- Provide or improve food and cover for fish, wildlife and livestock;
- Improve and maintain water quality;
- Establish and maintain habitat corridors;
- Increase water storage on floodplains;
- Reduce erosion and improve stability to stream banks and shorelines;
- Increase net carbon storage in the biomass and soil;
- Enhance pollen, nectar, and nesting habitat for pollinators;
- Restore, improve or maintain the desired plant communities;
- Dissipate stream energy and trap sediment;
- Enhance streambank protection as part of stream bank soil bioengineering practices.

CONDITIONS WHERE PRACTICE APPLIES

Areas adjacent to perennial and intermittent watercourses or waterbodies where the natural plant community is dominated by herbaceous vegetation that is tolerant of periodic flooding

or saturated soils. For seasonal or ephemeral watercourses and waterbodies, this zone extends to the center of the channel or basin.

Where channel and streambank stability is adequate to support this practice.

Where the riparian area has been altered and the potential natural plant community has changed.

CRITERIA

General Criteria Applicable to All Purposes

Dominant vegetation will consist of existing natural or planted herbaceous cover suited to the ecological site and the intended purpose. Plantings will consist of three or more native grass or sedge species and one or more forb species suited to the ecological site. At least 50 percent of each planting mix (seed or propagule count) shall be rhizomatous or moderately rhizomatous grass or sedge species.

Use Tables 5, 6A, or 6B, in South Dakota (SD) Range Technical Note No. 4, to identify appropriate species for the planting and follow the guidance in that same technical note regarding seeding rates, methods, dates, seedbed preparation, equipment, varieties, and management and protection during establishment.

Select perennial plants that are adapted to site and hydrologic conditions and provide the structural and functional diversity preferred by fish and wildlife likely to benefit from the installation of the practice.

In areas where native seeds and propagules are present, natural regeneration can be used in lieu of planting. Planting is required if no native seed bank is present.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact your Natural Resources Conservation Service [State Office](#), or visit the [electronic Field Office Technical Guide](#).

SDTG Notice SD-309
Section IV
NRCS-October 2010

Protect riparian vegetation and water quality by reducing or excluding haying and grazing until the desired plant community is well established.

Stream type and site hydrology must be considered. Selected plant species must be adapted to the projected duration of saturation and inundation of the site.

Harmful pests present on the site will be controlled or eliminated as necessary to achieve and maintain the intended purpose.

Pest management will be conducted in a manner that mitigates impacts to pollinators.

Management systems applied will be designed to maintain or improve the vigor and reproduction of the desired plant community.

Necessary site preparation and planting shall be done at a time and manner to insure survival and growth of selected species. Only viable, high quality, and site-adapted planting stock will be used.

Determine the width of the riparian herbaceous cover planting based on the geomorphic potential of the site and project purposes, including the life history requirements of local fish and wildlife species, including pollinators. Minimum width per side shall be at least 20 feet and include the first bench of the floodplain or at least 1.5 times the stream width (based on the horizontal distance between bankfull elevations). The minimum width for other water bodies shall be 20 feet.

Existing underground functional drains that pass through these areas shall be replaced with rigid, nonperforated pipe through the buffer or equipped with a management regulating structure to allow control of overflow.

Domestic grazing should be deferred for a minimum of two years or until such time as the desired plant community is established.

Additional Criteria to Maintain or Improve Water Quality and Quantity

Minimum width shall be increased to 2.5 times the stream width (based on the horizontal distance between bank-full elevations) or 35 feet for waterbodies. Concentrated flow

erosion or mass soil movement shall be controlled in the up gradient area prior to establishment of the riparian herbaceous cover.

Species selected shall have stiff stems and high stem density near the ground surface to reduce water velocities and facilitate infiltration into the floodplain.

Additional Criteria to Stabilize Streambanks and Shorelines

Select native or accepted, introduced species that provide a deep, binding root mass to strengthen streambanks and improve soil health.

Additional Criteria for Increasing Net Carbon Storage in Biomass and Soils

Maximize width and length of the herbaceous riparian cover to fit the site.

Plant species used will have the highest rates of biomass production for the soil and other site conditions, consistent with meeting fish and wildlife habitat requirements.

Additional Criteria for Pollinator Habitat

Include forbs and legumes that provide pollen and nectar for native bees. Utilize a diverse mix of plant species that bloom at different times throughout the year.

Additional Criteria for Terrestrial Wildlife

Develop required habitat conditions as identified for the designated species on the SD-CPA-26, Wildlife Habitat Management.

Select native species adapted to the site.

Density of the vegetative stand established for this purpose shall be managed for targeted wildlife habitat requirements and shall encourage plant diversity.

If mowing is necessary to develop or maintain herbaceous cover quality for the designated wildlife species, the habitat management shall be planned and documented using form SD-CPA-58, Upland Wildlife Habitat Management and will occur outside the nesting and fawning season and allow for adequate regrowth for winter cover. To protect pollinators and

maintain habitat with a diversity of plant structure, a third or less of the site should be disturbed (mowed, grazed, burned, etc.,) each year, allowing for recolonization of pollinators from surrounding habitat.

The management plan shall consider habitat and wildlife objectives such as habitat diversity, habitat linkages, daily and seasonal habitat ranges, limiting factors, and native plant communities.

Additional Criteria for Restoring Desired Plant Community

Use Ecological Site Description (ESD) state and transition models, where available, to determine if proposed actions are ecologically sound and defensible. Treatments need to be congruent with dynamics of the ESs and keyed to states and plant community phases that have the potential and capability to support the desired plant community. If an ESD is not available, base design criteria on best approximation of the desired plant community composition, structure, and function.

CONSIDERATIONS

Selection of native plant species is preferred. All selected species should have multiple values such as those suited for biomass, wintering and nesting cover, aesthetics, forage value for aquatic invertebrates, and tolerance to locally used herbicides.

Other conservation practices that may facilitate the establishment of Riparian Herbaceous Cover or enhance its performance include:

- Streambank and Shoreline Protection (580)
- Fence (382)
- Pasture and Hayland Planting (512)
- Range Planting (550)
- Filter Strip (393)
- Access Control (472)
- Prescribed Grazing (528)
- Brush/Shrub Management (314)
- Heavy Use Area Protection (561)
- Critical Area Planting (342)
- Riparian Forest Buffer (391)
- Early Successional Habitat Development/Management (647)
- Conservation Cover (327)

- Restoration and Management of Rare or Declining Habitat (643)
- Stream Crossing (578)
- Watering Facility (614)

Considerations should be given to how this practice will compliment the functions of adjacent riparian, terrestrial, and aquatic habitats.

Consider the effects of upstream and downstream conditions, structures, facilities, and constraints on the planned activities.

Control of trees and shrubs may be required to prevent dominance of the riparian zone by woody plants and maintain openness in riparian system.

Establish alternative water sources or controlled access stream crossings to manage livestock access to the stream and riparian area.

Selection of native plant species is recommended. Introduced species may be used. All selected species should have multiple values such as those suited for biomass, wintering and nesting cover, aesthetics, forage value for aquatic invertebrates, and tolerance to locally used herbicides.

The management plan shall consider habitat and wildlife objectives such as habitat diversity, habitat linkages, daily and seasonal habitat ranges, limiting factors, and native plant communities.

When feasible, this practice may be used to provide corridors or linkages between existing herbaceous habitat or even linking to wooded habitats. Linking existing habitats creates larger contiguous habitat blocks that may reduce predator efficiency on ground-nesting birds and other species.

Species selection, species composition (grass/forb ratio, for example), and management will determine the height and density and other vertical structure characteristics of the stand. For example, the dickcissel and ring-necked pheasant prefer grass-legume/forb mixes, whereas, the bobolink prefers stands with a reduced forb content.

Riparian herbaceous buffers designed to minimal widths will often function as population "sinks." They may provide suitable habitat to initiate nesting but the narrow width can increase predator efficiency, to the detriment of ground nesting birds.

Herbaceous riparian areas can function to link pollinators with adjacent fragmented habitat and can serve as a conduit to move pollinators into areas requiring insect pollination. Different flower sizes and shapes appeal to different categories of pollinators. To support many species, consider establishing the greatest diversity possible. Consider incorporating nesting habitat, including patches of unshaded bare soil for ground nesting bees or where bumble bee conservation is a priority, clump forming warm-season native grasses.

Avoid plant species which may be alternate hosts to pests. Species diversity should be considered to avoid loss of function due to species-specific pests.

The location, layout, and vegetative structure and composition of the buffer should complement natural features.

Corridor configuration, establishment procedures, and management should enhance habitats for threatened, endangered, and other plant or animal species of concern, where applicable.

Use plant species that provide full ground coverage to reduce particulate matter generation during establishment and maintenance operations.

PLANS AND SPECIFICATIONS

Specifications for this practice shall be prepared for each site. Specification shall be recorded using approved specifications sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation.

OPERATION AND MAINTENANCE

The purpose of operation, maintenance, and management is to insure that the practice functions as intended over time.

The riparian area will be inspected periodically in order to detect adverse impacts and make

adjustments in management to maintain the intended purpose.

Control of concentrated flow erosion or mass soil movement shall be continued in the up-gradient area to maintain riparian function.

Any use of fertilizers, pesticides, and other chemicals to assure riparian area function shall not compromise the intended purpose.

Harmful pests present on the site will be controlled or eliminated as necessary to achieve and maintain the intended purpose.

Pest management will be conducted in a manner that mitigates impacts to pollinators.

Avoid haying or grazing when streambanks and riparian areas are vulnerable to livestock or mechanical damage.

Manage grazing to sustain riparian functions and values.

Management systems will be designed and applied to maintain or improve the vigor and reproduction of the desired plant community, e.g., the riparian functions and values.

Where the primary purpose of the practice is to provide terrestrial wildlife habitat, the density of the vegetative stand shall be managed for targeted wildlife habitat requirements and shall encourage plant diversity. If mowing is necessary to maintain herbaceous cover, it will occur outside the nesting and fawning season and allow for adequate regrowth for winter cover.

REFERENCES

Federal Interagency Stream Restoration Working Group (FISRWG). 1998. Stream Corridor Restoration: Principles, Processes and Practices. National Technical Information Service, U. S. Department of Commerce, Springfield, VA. Also published as NRCS, U.S. Department of Agriculture (1998) Stream Corridor Restoration: Principles, Processes, and Practices. National Engineering Handbook, Part 653. Washington, D.C.

Fripp, J. B.; Hoag, J.C, and Moody, T. 2008. Streambank Soil Bioengineering: A Proposed Refinement of the Definition Riparian/Wetland Project Information Series No. 23.

Hoag, J.C. and J.B. Fripp. 2002. Streambank Soil Bioengineering Field Guide for Low Precipitation Areas, Interagency Riparian/Wetland Project. Plant Materials Center, USDA-NRCS, Aberdeen, ID.

Hoag, J.C., S.K. Wyman, G. Bentrup, L. Holzworth, D.G. Ogle, J. Carleton, F. Berg, and B. Leinard. 2001. USDA-NRCS, Boise, ID and Bozeman, MT. [Technical Note No. 38: Users Guide to the Description, Propagation, and Establishment of Wetland Plant Species and Grasses for Riparian Areas in the Intermountain West](#). (PDF; 6.3 MB)

Leopold, Luna. 1994. A View of the River. Harvard University Press. Cambridge, MA.

Naiman, R.J., N. Decamps, M. E. McClain. 2005. Riparian Ecology, Conservation, and Management of Streamside Communities. Elsevier Academic Press, Burlington, MA.

Rosgen, David 1994. A Classification of Natural Rivers. Catena 22:169-199

Schultz, R.C., J.P. Colletti, T.M. Isenhardt, W.W. Simpkins, C.W. Mize, and M. L. Thompson. 1995. Design and placement of a multi-species riparian buffer strip. *Agroforestry Systems* 29:201-225.ts.

United States Department of Agriculture, Natural Resources Conservation Service. 2008. General Manual: Title 190 – Ecological Sciences: Part 404, Pest Management. Washington, DC.

United States Department of Agriculture, Natural Resources Conservation Service. 2003. National Range and Pasture Handbook. Washington, DC.

http://plants.usda.gov/pollinators/Using_Farm_Bill_Programs_for_Pollinator_Conservation.pdf

Agroforestry Notes on supporting pollinators (General 6, 7, 8 and 9):

<http://www.unl.edu/nac/agroforestrynotes.htm>